In the Claims:

1. (Currently amended) Semiconductor sensor element having

a substrate base (1),

a homogeneous semiconductor layer (2, 2f) which is disposed on the substrate base (1) and contains semiconductor compounds based on nitrides of the main Group III elements or is formed therefrom,

the surface of the homogeneous semiconductor layer (2, 2f) orientated towards the substrate base (1) at least partially not abutting directly on the substrate base (1) or having a spacing from the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f),

~~characterised in that~~ wherein at least two electrical conducting contacts (5) for conducting an electrical output signal which can be generated by the homogeneous semiconductor layer (2, 2f) on the basis of a change in a physical variable to be determined by means of the semiconductor sensor element are disposed on, at and/or under the homogeneous semiconductor layer (2, 2f) or are integrated in the latter, and

wherein

there is disposed on or at the homogeneous semiconductor layer (2, 2f) on the side thereof oriented away from the substrate base, a cover layer (2e) of $Al_yGa_{1-y}N$ or $In_yGa_{1-y}N$ or $In_yAl_{1-y}N$ with a relative element content of $0<=y<=1.0$, in order to form a heterostructure of semiconductor compounds based on nitrides of the main Group III elements.

2. (Currently amended) Semiconductor sensor element according to the preceding claim 1,

~~characterised in that~~ wherein

at least one of the contacts (5) is disposed in the region of the region (2a) (spaced region) of the homogeneous semiconductor layer (2, 2f), which region does not abut directly on the substrate base (1) or has a spacing from the surface of the substrate base (1) and in that at least one of the contacts (5) is disposed in the region of a region (2b) (non-spaced region) of the homogeneous semiconductor

layer (2, 2f), which region does abut directly on the substrate base (1) or has no spacing from the surface of the substrate base (1).

3. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,

~~characterised in that~~ wherein

the homogeneous semiconductor layer (2, 2f) has a raised region or mesa region (9) which, in the direction perpendicular to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f), has a greater thickness than a region (non-mesa region) of the homogeneous semiconductor layer (2, 2f), which region abuts on this region (9) in a direction parallel to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer ~~(2, 2f)~~.

4. (Currently amended) Semiconductor sensor element according to the preceding claim 3,

~~characterised in that~~ wherein

the raised region or mesa region (9) is disposed such that it extends in a direction parallel to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f) partially over the spaced region (2a) of the homogeneous semiconductor layer (2, 2f) and such that it extends partially over the non-spaced region (2b) of the homogeneous semiconductor layer (2, 2f).

5. (Currently amended) Semiconductor sensor element according to the preceding claim 4,

~~characterised in that~~ wherein

the transition from the spaced region (2a) to the non-spaced region (2b) is effected in the direction parallel to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f) in the region of the centre of the raised region or mesa region (9).

6. (Currently amended) Semiconductor sensor element according to ~~one of the claims~~ claim 3 ~~to 5~~,
~~characterised in that~~ wherein
at least one of the contacts (5) is disposed directly on and/or in the region of an outer edge of the raised region or mesa region (9).

7. (Currently amended) Semiconductor sensor element according to ~~one of the claims~~ claim 3 ~~to 6~~,
~~characterised in that~~ wherein
the homogeneous semiconductor layer (2, 2f) in the non-mesa region in the direction perpendicular to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f) has a thickness of above 0.2 µm and/or below 50 µm, in particular of above 0.5 µm and/or below 5 µm, and/or in that the homogeneous semiconductor layer (2, 2f) in the raised region or mesa region (9) has the thickness of the non-mesa region and in addition a thickness of above 20 nm and/or below 1000 nm, in particular of above 50 nm and/or below 300 nm.

8. (Currently Amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the substrate base (1) contains silicon Si or is formed therefrom.

9. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the homogeneous semiconductor layer (2, 2f) contains semiconductor structures based on a main group III-nitride in the form of $Al_xGa_{1-x}N$ or $In_xGa_{1-x}N$ or $In_xA_{1-x}N$ with a relative element content of $0<=x<=1.0$ or is formed therefrom.

10. (Currently amended) Semiconductor sensor element according to the preceding claim 9,
~~characterised in that~~ wherein
the homogeneous semiconductor layer (2, 2f) contains GaN or is formed therefrom.

11. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
a spatial region present due to the spacing between the homogeneous semiconductor layer (2, 2f) and the substrate base (1) or between their surfaces orientated towards each other is not filled so that the semiconductor layer (2, 2f) relative to the substrate base is at least partially cantilevered.

12. (Currently amended) Semiconductor sensor element according to one of the claims 1or 2 ~~to 10~~,
~~characterised in that~~ wherein
a spatial region present due to the spacing between the homogeneous semiconductor layer (2, 2f) and the substrate base (1) or between their surfaces orientated towards each other is filled at least partially with a non-metallic and non-semiconducting material.

13. (Currently amended) Semiconductor sensor element according to the preceding claim 12,
~~characterised in that~~ wherein,
by means of the non-metallic and non-semiconducting material, the heat transfer properties and/or the mechanical properties and/or the high frequency properties of the sensor element can be improved.

14. (Currently amended) Semiconductor sensor element according to ~~one of the claims~~ claim 12 ~~to 13~~,

~~characterised in that~~ wherein
the non-metallic and non-semiconducting material contains SiO_2 and/or Si_xN_y (in particular SiN) and/or diamond and/or DLC (diamond-like carbon) and/or silicone-like filling materials and/or Al_2O_3 and/or thermally conductive plastic materials or is formed therefrom.

15. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the homogeneous semiconductor layer (2, 2f) is undoped or p-doped or n-doped.

16. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
~~the~~ an extension of the homogeneous semiconductor layer (2, 2f) in a direction essentially perpendicular to its surface orientated towards the substrate base (1) is above 0.2 μm and/or below 50 μm, in particular above 0.5 μm and/or below 5 μm.

17. (Cancelled)

18. (Currently amended) Semiconductor sensor element according to ~~the preceding claim and according to one of the claims~~ claim 3 ~~to 7~~,
~~characterised in that~~ wherein
the cover layer (2e) is disposed only on or at the raised region or mesa region (9) but not in the non-mesa region.

19. (Currently amended) Semiconductor sensor element according to one of the claims ~~17 or 18~~ 1 or 2.
~~characterised in that~~ wherein

the cover layer (2e) is formed from ~~AlGaN~~ $Al_yGa_{1-y}N$, in particular with $0.1<=y<=0.3$, particularly preferred with $0.15<=y<=0.25$.

20. (Currently amended) Semiconductor sensor element according to one of the claims ~~17 to 19~~ 1 or 2,
~~characterised in that~~ wherein
the cover layer (2e) is mechanically distorted and/or in that the extension of the cover layer (2e) in a direction essentially perpendicular to its surface orientated towards the substrate base (1) is in the range of above 5 nm and/or below 1000 nm, in particular in the range of above 10 nm and/or below 200 nm.

21. (Currently amended) Semiconductor sensor element according to one of the claims ~~17 to 20~~ 1 or 2,
~~characterised in that~~ wherein
the cover layer (2e) is undoped or p-doped or n-doped.

22. (Currently amended) Semiconductor sensor element according to one of the claims ~~17 to 21~~ 1 or 2,
~~characterised in that~~ wherein
there is disposed on or at the cover layer (2e) on the side thereof orientated away from the substrate base, at least one further homogeneous semiconductor layer with $Al_zGa_{1-z}N$ or $In_zGa_{1-z}N$ or $In_zAl_{1-z}N$ with a relative element content of $0<=z<=1.0$.

23. (Currently amended) Semiconductor sensor element according to the preceding claim 22,
~~characterised in that~~ wherein
the further homogeneous semiconductor layer is undoped or p-doped or n-doped.

24. (Currently amended) Semiconductor sensor element according to claim ~~15 or~~ 21 ~~or the preceding claim~~,

~~characterised in that~~ wherein
the doping material content is greater than O atoms per cm^3 and/or smaller than 10^{20} atoms per cm^3 and/or in that the doping material contains silicon Si and/or magnesium Mg or is formed therefrom and/or in that a doped layer has at least one volume doping and/or at least one pulsed doping.

25. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the electrical conducting contacts (5) are p- and/or n-contacts.

26. (Currently amended) Semiconductor sensor element according to the preceding claim 25,
~~characterised in that~~ wherein
an n-contact contains Al and/or Ti or is formed therefrom, the thickness of the contact being up to 1000 mm, particularly preferred up to 200 nm.

27. (Currently amended) Semiconductor sensor element according to claim 25 ~~or 26~~,
~~characterised in that~~ wherein
a p-contact has a layer sequence in the subsequently mentioned sequence: an Au layer, an Ni layer and an Au layer, the thickness of each of the layers being preferably up to 1000 mm, particularly preferred up to 200 nm.

28. (Currently amended) Semiconductor sensor element according to ~~one of the claims 17 to 27~~ claim 18,
~~characterised in that~~ wherein
the electrical conducting contacts (5) are disposed such that, with their help, an electrical output signal produced in the transition region between the homogeneous semiconductor layer (2, 2f) and the cover layer (2e) can be conducted and/or in that

the electrical conducting contacts (5) are disposed directly at the interface between the homogeneous semiconductor layer (2, 2f) and the cover layer (2e).

29. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the electrical conducting contacts (5) have a metallisation.

30. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the physical variable to be determined is the pressure, the temperature, a force, a deflection and/or an acceleration.

31. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the change in the physical variable to be determined by the homogeneous semiconductor layer (2, 2f) via a change in the spatial state, shape, volume, structure of a surface and/or a deflection or bulge relative to the substrate base (1) of the semiconductor layer (2, 2f) can be converted directly into the electrical output signal.

32. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the output signal can be generated by means of piezoelectric properties or mechanical changes in the lattice of the homogeneous semiconductor layer (2, 2f) or represents a change in charge carrier density on a surface of the homogeneous semiconductor layer (2, 2f) or another electrical variable, in particular a current, a voltage or an electrical resistance.

33. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein
the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) at least one anchor point (3) or abuts on the substrate base (1) via at least one interface to the substrate base (1) such that at least one part (2a) of the part of the homogeneous semiconductor layer (2, 2f), which part is not connected at the anchor point or does not abut on the substrate base (1), can be deflected directly relative to the substrate base (1), by means of a change in the physical variable to be determined relative to the substrate base (1).

34. (Currently amended)(Withdrawn) Semiconductor sensor element according to the preceding claim 33,
~~characterised in that~~ wherein
at least two anchor points (3) of the homogeneous semiconductor layer (2, 2f) have a connection in the form of a part (2b) of the homogeneous semiconductor layer (2, 2f), which part cannot be deflected relative to the substrate base (1) or has an interface to the substrate base (1).

35. (Original)(Withdrawn) Semiconductor sensor element according to claim 33,
~~characterised in that~~ wherein
a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) via exactly one anchor point (3) such that this deflectable part (2a) is an essentially linear bar, the anchor point (3) being disposed at one of the ends of the bar.

36. (Currently amended)(Withdrawn) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~or 34~~,

~~characterised in that~~ wherein

a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) via two anchor points (3) such that this deflectable part (2a) is an essentially linear bar, the two anchor points (3) being disposed at the two ends of the bar.

37. (Currently amended)(Withdrawn) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~or 34~~,

~~characterised in that~~ wherein

a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) via two anchor points (3) such that this deflectable part (2a) is an essentially U-shaped bar, the two anchor points (3) being disposed at the two ends of the U or of the bar.

38. (Currently amended) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~or 34~~,

~~characterised in that~~ wherein

a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) via three anchor points (3) such that this deflectable part (2a) is an essentially Y-shaped bar, the three anchor points (3) being disposed at the three ends of the Y or of the bar.

39. (Currently amended)(Withdrawn) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~or 34~~,

~~characterised in that~~ wherein

a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) via four anchor points (3) such that this deflectable part (2a) is an essentially X- or H-shaped bar, the four anchor points (3) being disposed at the four ends of the X or H or of the bar.

40. (Currently amended)(Withdrawn) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~or 34~~,
~~characterised in that~~ wherein
a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is connected to the substrate base (1) via a plurality of anchor points (3) such that this deflectable part (2a) is an essentially double comb-shaped bar, the anchor points being disposed at ends of the comb tines or at ends of the bar.

41. (Currently amended) Semiconductor sensor element according to ~~one of the claims 35 to 40~~ claim 38,
~~characterised in that~~ wherein
the minimum width of a bar in a given direction which is essentially perpendicular to the deflection direction is above 20 µm and/or below 200 µm and/or in that the arithmetical average of the spacing of anchor points is above 300 µm and/or below 5000 µm.

42. (Currently amended)(Withdrawn) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~to 40~~,
~~characterised in that~~ wherein
a deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) is formed as a membrane (2c) such that, by means of a difference in the physical variable, in particular in the pressure, on both sides of the membrane (2c), the latter is able to bulge such that, as a result, in this deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) and/or in a part (2b) of the homogeneous semiconductor layer (2, 2f), which part (2b) is connected to said deflectable part (2a) and cannot be deflected relative to the substrate base (1), the output signal can be generated.

43. (Currently amended)(Withdrawn) Semiconductor sensor element according to the preceding claim 42,
~~characterised in that~~ wherein

the membrane (2c) is essentially circular or semicircular.

44. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1or 2,
~~characterised in that~~ comprising
at least two electrically connected homogeneous semiconductor layer elements.

45. (Currently amended)(Withdrawn) Semiconductor sensor element according to claim 43 ~~and~~ 44,
~~characterised in that~~ wherein
at least two semicircular membrane-semiconductor layer elements (2d) are connected together with a circular membrane-semiconductor layer element (2c) such that a temperature-independent pressure sensor is produced.

46. (Currently amended) Semiconductor sensor element according to ~~one of the claims~~ claim 33 ~~to 43~~,
~~characterised in that~~ wherein,
on one deflectable part (2a) of the homogeneous semiconductor layer (2, 2f), a solid body (4), preferably of high density, is disposed or fixed such that the solid body (4) can be deflected directly relative to the substrate base (1) by a change in the physical variable to be determined and, as a result, in this deflectable part (2a) of the homogeneous semiconductor layer (2, 2f) and/or in a part (2b) of the homogeneous semiconductor layer (2, 2f), which part (2b) is connected to said deflectable part (2a) and cannot be deflected relative to the substrate base (1), the output signal can be generated.

47. (Currently amended) Semiconductor sensor element according to one of the preceding claims 1 or 2,
~~characterised in that~~ wherein

the sensor element and/or the homogeneous semiconductor layer (2, 2f) is configured as a functional unit with integrated electrical or electronic circuits which have semiconductor structures based on a main Group III-nitride.

48. (Currently amended) Semiconductor sensor element according to the preceding claim 47,
~~characterised in that~~ wherein
the circuits have diode structures and/or transistor elements and/or temperature sensor elements and/or in that the circuits are compensation circuits or amplifier circuits, in particular for signal amplification.

49. (Currently amended) Semiconductor sensor element according to ~~one of the claims~~ claim 47 ~~to 48~~,
~~characterised in that~~ wherein
the circuits have Schottky contacts and/or in that the circuits are configured as a Wheatstone bridge.

50. – 72. (Cancelled)

73. (New) Semiconductor sensor element comprising
a substrate base (1),
a homogeneous semiconductor layer (2, 2f) which is disposed on the substrate base (1) and contains semiconductor compounds based on nitrides of the main Group III elements or is formed therefrom, the surface of the homogeneous semiconductor layer (2, 2f) orientated towards the substrate base (1) at least partially not abutting directly on the substrate base (1) or having a spacing from the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f),
wherein at least two electrical conducting contacts (5) for conducting an electrical output signal which can be generated by the homogeneous semiconductor layer (2, 2f) on the basis of a change in a physical variable to be determined by means of the

semiconductor sensor element are disposed on, at and/or under the homogeneous semiconductor layer (2, 2f) or are integrated in the latter,

and wherein a deflectable part (2a) of the homogeneous semiconductor layer (2,2f) is connected to the substrate base (1) via three anchor points (3) such that this deflectable part (2a) is an essentially Y-shaped bar, the three anchor points (3) being disposed at the three ends of the Y of the bar, such that the portion of the Y-shaped bar which part is not connected at the anchor point or does not abut on the substrate base (1), can be deflected directly relative to the substrate base (1), by means of a change in the physical variable to be determined relative to the substrate base (1).

74. (New) Semiconductor sensor element according to claim 73, wherein the homogeneous semiconductor layer (2, 2f) contains semiconductor structures based on a main group III-nitride in the form of $Al_xGa_{1-x}N$ or $In_xGa_{1-x}N$ or $In_xA_{1-x}N$ with a relative element content of $0<=x<=1.0$ or is formed therefrom.

75. (New) Semiconductor sensor element according to claim 73 or 74, wherein the homogeneous semiconductor layer (2, 2f) has a raised region or mesa region (9) which, in the direction perpendicular to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f), has a greater thickness than a region (non-mesa region) of the homogeneous semiconductor layer (2, 2f), which region abuts on this region (9) in a direction parallel to the surface of the substrate base (1) orientated towards the homogeneous semiconductor layer (2, 2f).

76. (New) Semiconductor sensor element according to claim 75, further comprising a cover layer (2e) disposed only on or at the raised region or mesa region (9), but not in the non-mesa region, the cover layer being formed from $Al_yGa_{1-y}N$, in particular with $0.1<=y<=0.3$, particularly preferred with $0.15<=y<=0.25$.

77. (New) Semiconductor sensor element according to claim 75, wherein

there is disposed on or at the cover layer (2e) on the side thereof orientated away from the substrate base, at least one further homogeneous semiconductor layer with $Al_zGa_{1-z}N$ or $In_zGa_{1-z}N$ or $In_zAl_{1-z}N$ with a relative element content of $0<=z<=1.0$.